APPENDIX I

Tests for commercial tomato varieties administered by the Ministry of Agriculture of the State of Israel

Abstract

The attached document describes official guidelines administered by the Ministry of Agriculture of the State of Israel that are directed to breeders of tomato crop varieties. These guidelines provide the breeders with parameters to qualitatively evaluate tomato varieties. The tomato varieties test encompass **visual evaluation** of parameters such as endogenous color, presence of veins, jelly, hollowness, "shoulders" color, vegetative growth, fruit leaf cover, disease resistance, fruit shape, general color, hardness/ solidness of the fruit, healthiness of the plant and pulp/flesh color. It should be emphesised that these parameters are **visually evaluated in the field** by tomato breeders and they are **qualitatively scored by a relative scale** (i.e. poor, high, soft, weak, few, many, solid, good, pronounced and medium) as presented in Table 2 of the attached document. The subsequent conclusion of considering all these visual evaluations is a general evaluation with respect to the determination if the crop yield of the specific variety is suitable for commercial use.

Tests for Commercial Tomato varieties

(2002)

Table 1: Tomato varieties' tests by location

Location	Test	No. of varieties	No. of repeats	Seeding date	Harvest date
Eden farm	Regular varieties *	6	6	20.2.02	18.6.02
Eden farm	Special varieties	8	6	20.2.02	16.6.02
Eden farm	Introduction/ Acclimatization	8	2	20.2.02	16.6.02
Yavne'el	Regular varieties	6	4	16.3.02	8.7.02
Acre	Regular varieties 1	17	2	12.4.02	31.7.02
Acre	Regular varieties 2	17	4	12.4.02	7.8.02
Acre	Regular varieties 3	17	3	12.4.02	14.8.02
Acre	Special varieties 1	17	1	12.4.02	31.7.02
Acre	Special varieties 2	19	2	12.4.02	12.8.02
Acre	Introduction/ Acclimatization	10	4	12.4.02	8.8.02
Mevo-Hamah	Regular varieties	13	6	12.5.02	2.9.02
Mevo-Hamah	Special varieties	13	6	12.5.02	30.8.02
Mevo-Hamah	Introduction/ Acclimatization	24	2	12.5.02	2.9.02

* = Harvest by a combine harvester

Quantitative and qualitative parameters for variety comparison:

The parameters for testing the varieties were evaluated in the field and in the laboratory for field crops in the Agricultural Faculty of the State of Israel (by Tehila Bloch):

In the field: red yield, green yield, single fruit weight, % of spines

In the laboratory- evaluation of veins quantity, gel, hollowness, "shoulders", color (visual evaluation), pH, Brix, Brix yield (red yield multiplied by Brix %)

Varieties evaluation- Additional parameters for varieties evaluation in the field are visual parameters tested by skilled persons in the field. These parameters include vegetative growth, fruit leaf cover, healthiness of the plant, fruit shape, fruit color, fruit solidness, and general weighted evaluation performed by the following formula:

15% vegetative growth score + 15% fruit leaf cover score + 30% color score + 40% solidness score

The visual evaluation, performed in the field and in the laboratory, is relatively scored between 1 and 5, as demonstrated in Table 2 that follows:

Table 2: Variety's traits evaluation score

Trait	1	2	3	4	5	6
Endogenous color	pink		red		dark red	
veins	many		few		absent	
Jelly	green	red				
hollowness	pronounced		poor		absent	
"shoulders"	green/ white		yellow		red	
growth	poor		moderate		good	
leaf cover	poor		moderate		good	
disease resistance	good		moderate		healthy	
Fruit shape	round		blocky		elongated	"pear" like
General color	faint		moderate		good	
solidness	soft		moderate		solid	
General estimation *	rejected		average quality		excellent	

Results

The results are summarized according to the location of the tests and according to the deferent tests performed.

In the field tests- The varieties are ordered according to the general evaluation score.

In Acre, several subsequent harvests of regular and special varieties were performed, for yield comparison in different dates, for early/ late variety, and for field adaptation.

The statistical tests were performed by Yael Phuzin by SAS software, using S.N.K test with significance value of 0.05.